## REMARKS

Claims 1-21 are pending in this application. By this Amendment, claim 21 has been amended to correct a minor typographical error. Reconsideration based on the above amendments and the following remarks is respectfully requested.

Applicant gratefully acknowledges that the Office Action indicates that claims 20 and 21 include allowable subject matter.

The Examiner is thanked for the many courtesies extended to Applicant's attorney in the course of a personal interview conducted December 17, 2003. The substance of the interview is included herein per MPEP §713.04.

### I. Double Patenting Rejection

The Office Action rejects claims 1-19 under the judicially created doctrine of obviousness-type double patenting, as being unpatentable over claims 1-14 of U.S. Patent Application 09/433,941. As discussed with the Examiner, Applicant respectfully submits that the scope of claims 1-19 is different from the scope of claims 1-14 of U.S. Patent Application 09/433,941. Therefore, applicant respectfully requests withdrawal of this rejection.

### II. The Claims Define Allowable Subject Matter

Claims 1-5, 18 and 19 are rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent 6,038,340 to Ancin et al. ("Ancin") in view of U.S. Patent 5,287,452 to Newman. This rejection is respectfully traversed.

Ancin and Newman do not disclose, teach or suggest "An apparatus that counts pixels in regions of interest within data present on a data bus, the data on the data bus including image data having active and inactive pixels, the apparatus comprising a pixel counter, coupled to the data bus, that selectively reads the image data from the data on the data bus

and that generates a pixel count based on the active pixels of the image data," as recited in claims 1-5.

Ancin discloses "a system and method in a scanner for automatically detecting the black and white points of a color image" (col. 1, lines 9-11). As shown in Fig. 1 of Ancin, a communications interface 250 receives a digital image 285 from optical scanner electronics 110 and forwards the digital image 285 to a data storage device 260 or RAM 270 for image processing (col. 3, lines 37-41). Several programs are stored in the RAM 270, including an operating system 275 and a scanner application program 280. The scanner application program 280 includes a black and white point detector 290 and an image processor 295, which includes a pixel counter 320, as shown in Figs. 2-3. An image partitioning routine 310 divides the digital image 285 into a plurality of blocks, as discussed at col. 4, lines 10-15 of Ancin. As disclosed at col. 4, lines 16-30, the pixel counter 320 selects a block from the digital image 285 stored in the RAM 270, and computes the number of black pixels and the number of white pixels in the selected block.

The Office Action asserts, "Ancin et al. discloses an apparatus that counts pixels in regions of interest within data present on a data bus..., the apparatus comprising a pixel counter, coupled to the data bus, that selectively reads the image data from the data on the data bus...." As conceded in the Office Action, "Ancin et al. does not clearly disclose reading the image data selectively." Applicants' respectfully submit, in view of the discussion of Ancin above, that the Office Action mischaracterizes the teachings of Ancin. Properly understood, Ancin discloses forwarding (writing) all digital image data along a data bus 240 to the RAM 270. Subsequently, the image partitioning routines 310 divide the digital image data stored in the RAM 270 into blocks, so that a pixel counter can compute the number of black pixels and the number of white pixels in one of the blocks of digital image data stored

in the RAM 270. Therefore, Ancin does not disclose selectively reading image data from the data on the data bus to generate a pixel count. Instead, Ancin writes all of the data to a RAM 270 and all of the data is processed in the RAM 270.

The Office Action asserts that Newman discloses image data selected from a data bus based on starting and ending addresses (col. 7, lines 28-51). However, Newman discloses a display system for refreshing a display, comprising a display memory, a display and an interface, where the display memory stores image data. The interface receives image data and determines whether the received image data relates to stored image data that is usually stored in the display memory. Subsequently, the interface controls storage of the received image data in the display memory. More specifically, a bus control interface 112 monitors a line 15 of a bus 12 for addresses in a selected region of virtual space. When the bus control interface 112 detects a virtual address meeting certain criteria, the bus control interface 112 causes a data buffer 114 to latch onto the data lines 14. An address translator 204 translates the virtual address into a physical address to identify a storage location in the display memory 116 (RAM) for storing the data in the data buffer 114 (col. 4, line 57-col. 5, line 14 of Newman). However, Newman does not selectively read image data from data on the data bus to generate a pixel count based on active pixels of the image data.

In addition, one having ordinary skill in the art would not have been motivated to combine Newman's display system with Ancin's scanner system. Ancin's scanner system is directed toward writing digital data from an optical scanner 110 to a data storage device 260 or RAM 270 for further image processing. In order to process the image data, including determining whether to count a red, green and blue pixel as a black pixel or a white pixel, Ancin requires all digital image data to be partitioned into image blocks. Ancin requires a complete transfer of all digital image data from the optical scanner 110 to the RAM 270 to be

able to divide the digital image data into blocks prior to performing the image processing, including making a determination as to whether a pixel is a black pixel or a white pixel. Therefore, Ancin teaches against selectively reading image data from the data, which is not on the data bus in any case, to generate a pixel count based on active pixels of the image data.

Further, Newman's display system translates virtual addresses into physical addresses for storage of display data in the display memory 116 (RAM). One having ordinary skill in the art would not have been motivated to combine a display refreshing system of Newman with Ancin's system and method in a scanner for automatically detecting black and white points of a color image.

Moreover, even if Ancin and Newman were combined, this combination does not teach or suggest a pixel counter selectively reading image data from the data on the data bus in generating a pixel count based on the active pixels of the image data. In fact, since Ancin requires dividing all digital image data into blocks for further processing in a random access memory 270 to determine whether image data is a black pixel or white pixel, there is no motivation to selectively read image data from data on the data bus.

Regarding claims 18 and 19, claims 18 and 19 depend from claim 12. Since the Office Action did not reject claim 12 under 35 U.S.C. §103 as unpatentable over the combination of Ancin and Newman, claims 18 and 19 are conceded to be distinguishable over this combination of references.

18-819 cancel / reject under 103 using Ancin & Newman.

For at least these reasons, the combination of Ancin and Newman does not teach, disclose, or suggest all of the features in claims 1-5, 18, and 19. Thus, the combination of Ancin and Newman does not render obvious the subject matter of claims 1-5, 18, and 19. Withdrawal of the rejection of claims 1-5, 18 and 19 is respectfully requested.

Claim 11 is rejected under 35 U.S.C. §103(a) as unpatentable over Ancin in view of Newman and further in view of U.S. Patent 5,729,351 to Oh. This rejection is respectfully traversed.

Oh discloses "an apparatus and process for displaying the number of printed sheets of paper and the print ratio of the printed black pixels with respect to the overall area of a paper in conjunction with printing of images represented by the information," as recited in col. 1, lines 18-22. However, as indicated in col. 6, lines 5-15 of Oh, a print control unit 211 stores print data corresponding to one page in a page memory area of a RAM 215. After that, the print control unit 211 counts the number of black pixels in the print data corresponding to one page stored in the page memory area at step 315, as indicated in col. 6, lines 7-12. Oh does not "count pixels in regions of interest within data present on a data bus," as recited in claim 11. Oh counts black pixels stored in a page memory area of the RAM 215 instead of selectively reading image data from the data on the data bus in generating a pixel count based on the active pixels of the image data.

Although Oh teaches an adder in col. 5, lines 43-61, one of ordinary skill in the art would not have been motivated to combine a display refreshing system (Newman) with a system for timely replacing individual consumable units such as toner (Oh) and a system for detecting a black and white point of a color image (Ancin).

For at least these reasons, the combination of Ancin, Newman and Oh does not teach, disclose, or suggest all of the features in claim 11. Thus, the combination of Ancin, Newman, and Oh does not render obvious the subject matter of claim 11. Withdrawal of the rejection of claim 11 is respectfully requested.

Claims 6-10 and 12-17 are rejected under 35 U.S.C. §103(a) as unpatentable over Ancin in view of Newman and further in view of U.S. Patent 6,145,947 to Inora et al. ("Inora"). This rejection is respectfully traversed.

The Office Action asserts that "Ancin et al. and Newman do not disclose the apparatus according to claim 1, wherein the image data is grouped into a scan line, the scan line comprising at least one row of pixels extending across an image."

Inora discloses an ink consumption detection system in which a printer controller 103 reads an ink consumption counter for a memory 114 and adds print count values to the ink consumption counter to produce an updated ink consumption counter which is stored in memory. Although Fig. 6 shows print image data indicating ejection or non-ejection nozzles (col. 5, lines 19-46), one having ordinary skill in the art would not have been motivated to combine the ejection/non-ejection print image data Fig. 6 of Inora with the system and method for detecting black and white points of a color image of Ancin and the bus caching computer display system of Newman. Even if these references were combined, these references do not disclose "a pixel counter, coupled to the data bus, that selectively reads the image data from the data on the data bus and then generates a pixel count based on the active pixels of the image," as recited in claims 1-11, and "selectively reading...image data on the data bus," as recited in claims 12-19.

For at least these reasons, the combination of Ancin, Newman and Inora does not teach, disclose, or suggest all of the features in claims 6-10 and 12-17. Thus, the combination of Ancin, Newman, and Inora does not render obvious the subject matter of claims 6-10 and 12-17. Withdrawal of the rejection of claims 6-10 and 12-17 is respectfully requested.

Regarding new claim 20, Ancin and Newman , taken separately or in combination, do not disclose, teach or suggest "image data on the data bus... directly read from the data bus to be provided to the pixel counter coupled to the data bus."

Regarding new claim 21, Ancin and Newman, taken separately or in combination, do not disclose, teach, or suggest "selectively reading the image data on the data bus comprises selectively and directly reading the image data from the data bus and providing the image data read from the data bus to the independent pixel counter."

Ancin requires all of the data on data bus 240 to be written to the memory 270 for further processing. Ancin does not disclose directly reading image data from the data bus as recited in claims 20 and 21. Ancin discloses writing all data to RAM 270 for further processing instead of selecting from among the image data that is present on the data bus and directly reading the image data from the data bus itself.

Newman discloses a bus control interface 112, which monitors a line 15 of a bus 12 for addresses in a selected region of virtual space. When the bus control interface 112 detects a virtual address meeting certain criteria, the bus control interface 112 causes a data buffer 114 to latch onto the data lines 14. An address translator 204 translates the virtual address into a physical address to identify a storage location in the display memory 116 (RAM) for storing the data in the data buffer 114 (col. 4, line 57-col. 5, line 14 of Newman). However, Newman does not selectively and directly read image data from data on the data bus to generate a pixel count based on active pixels of the image data

In addition, one having ordinary skill in the art would not have combined Ancin and Newman. Newman's display system translates virtual addresses into physical addresses for storage of display data in the display memory 116 (RAM). One having ordinary skill in the art would not have been motivated to combine a display refreshing system (Newman) with

Ancin's system and method in a scanner for automatically detecting black and white points of a color image.

Moreover, even if Ancin and Newman were combined, this combination does not teach or suggest a pixel counter selectively and directly reading image data from the data on the data bus to generate a pixel count based on the active pixels of the image data. In fact, since Ancin requires dividing all digital image data into blocks for further processing in a random access memory 270 to determine whether image data is a black pixel or white pixel, there is no motivation to selectively and directly read image data from data on the data bus.

For at least these reasons, the combination of Ancin and Newman does not teach, disclose, or suggest all of the features in claims 20-21. Thus, the combination of Ancin and Newman does not render obvious the subject matter of claims 20-21. Withdrawal of the rejection of claims 20-21 is respectfully requested.

## III. Conclusion

For at least these reasons, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-21 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

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